

THE SPIDER FAUNA ASSOCIATED WITH LITTER UNDER WOODRAT MIDDENS IN SOUTHERN CALIFORNIA (ARACHNIDA: ARANEAE)

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Abstract.—Litter from under wood rat (*Neotoma* sp.) middens from southern California, was sampled, primarily between 1977–1985, in search of latridiid beetles. As an ancillary by-product, spiders were collected, separated and labeled with collection data but most have remained undetermined until now. In this paper, we determine the spider species associated with the rat middens, predominantly from five southern Californian counties, ranging in elevation from 200 to 1900 m. This study yielded 316 specimens representing 42 species, 34 genera and 20 families of spiders. The family Linyphiidae was represented here with the greatest number of genera, species and specimens. The most frequently collected species, *Tapinocyba dietrichi* Crosby & Bishop (Linyphiidae), contributed 37.3% of the specimen total. *Spirembolus erratus* Millidge (Linyphiidae) and *Zanomys californica* (Banks) (Amaurobiidae) were the second and third most predominant species, contributing 16.5% and 5.1%, respectively, of the specimen total. Many of the specimens identified in this study are members of minute species (1–3 mm), which can easily be overlooked unless samples are carefully scrutinized. Some of the more interesting and uncommon species include *Trogloneta paradoxum* Gertsch (Mysmenidae), *Gertschanapis shantzi* (Gertsch) (Anapidae), several *Zanomys* spp., and members from the families Hahniidae, Caponiidae and Oonopidae. Specimens collected here will contribute to the description of three new species (2 amaurobiids, 1 linyphiid) and the male of a second linyphiid species.

Key Words.—Arachnida, *Neotoma*, rat middens, species list, Araneae, spiders.

Woodrats of the genus *Neotoma* create large middens composed of vegetation and other materials culled from the surrounding environment (English 1923). Middens can reach massive sizes, primarily through occupancy by successive generations with each occupant adding material. In so doing, the rats create a microhabitat that often differs from the immediate surrounding area in various biotic and abiotic aspects (Vestal 1938, Linsdale & Tevis 1951). Dimensions of 301 middens in northern California averaged 118 cm in height and 152 cm in basal diameter; the average volume of 572 middens was 0.713 m³ (Vestal 1938). Active rat middens are strewn with fresh food cuttings and copious fecal pellets (Linsdale & Tevis 1951). Considering their structural features, middens provide ideal harborage for a plethora of animals including spiders (Linsdale & Tevis 1951). Fossil midden remains have offered a wealth of data on the historical plant and arthropod components of the regions of occupancy (Hall et al. 1989, Elias et al. 1992, Clark & Sankey 1999) although, in these studies, arachnids were represented solely by the hard-bodied ticks, scorpions and pseudoscorpions.

From 1977 to 1985, Ken Cooper of the University of California-Riverside (UCR) harvested arthropod inhabitants from the litter under *Neotoma* nests in search of beetles of the family Latridiidae. This litter was collected primarily from five southern Californian counties in a variety of habitats ranging from the Los Angeles-San Diego basins (ca. 300 m elevation) to the surrounding inland and coastal mountains (up to 1900 m). An ancillary by-product of the collections resulted in an accumulation of spiders which, until now, have languished in the

UCR Entomology museum, mostly as undetermined specimens. We have identified these spiders, the majority of which were less than 3 mm in body length, and present our findings here.

Minute spiders pose several problems that impede identification. Size alone creates difficulties in manipulation of the specimens as well as in distinguishing the pertinent diagnostic characters. Most of the minute species determined in this study are members of the Linyphiidae which contains a cumbersome number of genera and species that are often very difficult to identify. Relatively few generic keys and current taxonomic revisions are available for this family; those that do exist often include only regional fauna. One of the most current and definitive identification guides for North American spiders (Roth 1993) presents keys to genera for every family except the Linyphiidae which are simply listed alphabetically by genus for both the linyphiine (45 genera) and erigonine (117 genera) spiders. What we hope to accomplish here is to assist future investigators of *Neotoma* biology, add to our knowledge of Californian linyphiid distribution, and encourage eager arachnologists to pursue taxonomic studies on the little-known genera.

MATERIALS AND METHODS

All information regarding the history of the spiders from the *Neotoma* middens was derived from personal communications with the collector (K. Cooper), the processor (F. Andrews) of the midden material, and the former curator (S. Frommer) of the Entomology museum collection (all former associates of UCR). Approximately 100 *Neotoma* (mostly *N. fuscipes* with a few *N. lepida*) middens were sampled. The litter under each nest was shoveled into canvas bags, brought back to the laboratory and processed in approximately 12 gallon loads, for up to 10 days, in Berlese funnels until no additional arthropods were collected. Although most of the spiders were part of the undetermined UCR Entomology Research Museum spider collection, it was not known how many spiders were actually identified and incorporated as determined species. Consequently, we searched the entire general spider collection (> 1700 vials) excepting the orb-weaver families Araneidae, Tetragnathidae, Uloboridae, the adults of which we felt would not likely be using the litter under rat middens as refugia. As a result of our search, we believe that this study represents an accurate inventory of the material recovered by the researchers.

Spiders were present in samples from at least 50 *Neotoma* middens collected by Cooper in southern California. Also included are data from one midden from San Bernardino County, California collected by Andrews, Hardy & Eichlin in 1985. Elevations not present on the collection labels were approximated to the nearest 25 meters with topographic maps or through recent communications with K. Cooper and should be accurate to within 50 meters. Spiders are listed in Table 1 in decreasing frequency by family to show the importance of their ecological association with *Neotoma* nests and then alphabetically by genus within each family; families with equal numbers of specimens are grouped alphabetically.

All specimens have been incorporated into the reference collection of the UCR Entomology Research Museum.

Table 1. List of the spiders identified from *Neotoma* rat nests.

Family/Genus	Species	Male	Fem	Imm	County	Date	Elevation (meters)	Locale
Linyphiidae								
<i>Ceratinops</i>	<i>inflatus</i>	2	2		Riverside	14-Jan-83	1800	0.8 km E of James Reserve, San Jacinto Mts
<i>Ceratinopsis</i>	<i>interventa</i>		1		Kern	23-Sep-81	800	Red Rock Cyn campsite
" <i>Ceratinopsis</i> "	<i>palomara</i>		1		Riverside	30-Apr-81	750	Bautista Cyn, 27.4 km SE of Valle Vista
	<i>palomara</i>		2		Riverside	29-Apr-82	300	Clinton Keith Rd, W Murrieta near entrance to cyn
	<i>palomara</i>	1	5		Riverside	14-Jan-83	1825	0.8 km E of James Reserve, San Jacinto Mts
<i>Linyphantes</i>	<i>aeronautica</i>		1		Riverside	27-Dec-79	400	Whitewater Cyn
	<i>aeronautica</i>	1			Riverside	25-Mar-82	500	Hemet, Motte Reserve
	<i>laguna</i>		1		San Diego	13-Mar-81	1075	San Felipe
	<i>microps</i>	1			Riverside	25-Mar-82	500	Hemet, Motte Reserve
<i>Spirembolus</i>	<i>demonologicus</i>		2		San Diego	13-Mar-81	1075	San Felipe
	<i>erratus</i>	1			Riverside	13-Jan-77	1100	Bautista Cyn, 27.4 km SE of Valle Vista
	<i>erratus</i>		1		Riverside	13-Feb-77	600	Harford Preserve, Gavilan Hills
	<i>erratus</i>		9		Riverside	20-Mar-77	600	Gavilan Hills
	<i>erratus</i>	10	14	1	Riverside	27-Dec-79	400	Whitewater Cyn
	<i>erratus</i>	1			Riverside	18-Nov-83	200	Vail Lake
	<i>erratus</i>	1	1		Riverside	18-Nov-83	200	Vail Lake
	<i>erratus</i>	1			Riverside	18-Nov-83	200	Vail Lake "nest 2"
	<i>erratus</i>	1	9		San Bernardino	26-Feb-77	525	E of Mentone
	<i>erratus</i>		1		San Bernardino	13-May-82	700	Baldy Mesa, Phelan & Transmission Line Rd
	<i>erratus</i>		1		Santa Barbara	11-Aug-83	1075	Figueroa Mt Rd
	<i>hibernus</i>		1		Riverside	24-Aug-83	950	El Carrizo Oaks
	<i>hibernus</i>		1		San Diego	13-Mar-81	1075	San Felipe
	<i>redondo</i>		1		San Bernardino	2-May-68	325	1.6 km E of Summit on Rt 138
<i>Tapinocyba</i>	<i>dietrichi</i>	8	7		Los Angeles	11-Nov-80	1000	0.8 km N of Jct. Vasquez & Bouquet Cyns
	<i>dietrichi</i>	6	6		Los Angeles	14-Aug-81	1000	Bouquet Cyn nr. SE arm Bouquet Reservoir
	<i>dietrichi</i>	1			Los Angeles	20-Apr-82	1000	Bouquet Cyn Rd at E. end Bouquet Cyn Reservoir
	<i>dietrichi</i>		6		Los Angeles	20-Apr-82	1000	3.2 km E toward Palmdale on Bouquet Cyn Rd
	<i>dietrichi</i>	1			Los Angeles	20-Apr-82	1000	Bouquet Cyn nr. entrance Vasquez Rd
	<i>dietrichi</i>	2	24		Riverside	14-Jan-83	1825	James Reserve Lk Fulmor
	<i>dietrichi</i>	1	1		Riverside	4-Jun-83	750	7 km SE of Sage on R3
	<i>dietrichi</i>	1			Riverside	24-Aug-83	950	El Carrizo Oaks

Table 1. Continued.

Family/Genus	Species	Male	Fem	Imm	County	Date	Elevation (meters)	Locale
	dietrichi		3		San Bernardino	2-May-68	325	1.6 km E of Summit on Rt 138
	dietrichi	5	5		San Bernardino	3-Jun-81	975	18.6 km from Hwy 15 on Rt 138 nr Little Horse- thief Ranch
	dietrichi		3		San Bernardino	1-May-85	1100	Summit Vly under cottonwood
	dietrichi	4	16		San Diego	25-Jul-79	1250	William Heise Co. Park, Pine Hills S of Julian
	dietrichi	1	2		San Diego	13-Mar-81	1075	San Felipe
	dietrichi	1	1		San Diego	13-Mar-81	725	San Felipe @ S2
	dietrichi	5	8		Santa Barbara	11-Aug-83	1075	Figuroa Mt Rd, 1.6 km W Rngr Sta
	sp. #1		1		Riverside	17-Jun-77	1300	Covington Flat
	sp. #1		7		Riverside	9-Dec-81	1325	Joshua Tree Natl Pk, Hidden Valley
	sp. #1		4		San Bernardino	21-May-82	975	6.4 km N of Yucca Valley
Amaurobiidae								
<i>Amaurobius</i>	latescens		1		San Bernardino	26-Feb-77	525	E of Mentone
<i>Zanomys</i>	californica		1		Los Angeles	11-Nov-80	1000	0.8 km N of Jct. Vasquez & Bouquet Cyns
	californica		1		Riverside	13-Jan-77	1100	Bautista Cyn, 27.4 km SE of Valle Vista
	californica	4			Riverside	14-Jan-83	1825	James Reserve Lk Fulmor
	californica		3		Riverside	14-Jan-83	1825	0.8 km E of James Reserve, San Jacinto Mts
	californica	1			Riverside	18-Nov-83	200	Vail Lake "nest 2"
	californica		1		San Bernardino	2-May-68	325	1.6 km E of Summit on Rt 138
	californica		1		San Bernardino	3-Jun-81	975	18.6 km from Hwy 15 on Rt 138 nr Little Horse- thief Ranch
	californica		1		San Bernardino	1-May-85	1100	Summit Valley
	californica	1			San Bernardino	14-Apr-85	1850	Wrightwood
	californica		1		San Diego	25-Jul-79	1250	William Heise Co. Park, Pine Hills S. Julian
	californica		1		San Diego	25-Apr-80	1075	San Felipe
	ochra		1		San Bernardino	15-May-78	1900	Burns Cyn above Rimrock
	ochra		2		San Bernardino	13-May-82	700	Baldy Mesa, Phelan & Transmission Line Rd
	ultima		3		Santa Barbara	11-Aug-83	1075	Figuroa Mt Rd
	sp. #1	4	7		Riverside	9-Dec-81	950	Joshua Tree Natl Pk

Table 1. Continued.

Family/Genus	Species	Male	Fem	Imm	County	Date	Elevation (meters)	Locale
Genus #1			1		Riverside	7-Dec-77	unknown	Boyd Desert Center, Coyote Creek
Anapidae								
<i>Gertschanapis</i>	shantzi	3	2	2	Los Angeles	17-Nov-80	1000	Bouquet Reservoir
	shantzi	3	6		Los Angeles	14-Aug-81	1000	Bouquet Cyn nr. SE arm Bouquet Reservoir
Oonopidae								
<i>Oonops</i>	sp. #1		1		Riverside	5-Nov-80	400	Whitewater Cyn
<i>Orchestina</i>	moaba		1		Riverside	13-Feb-77	600	Gavilan Hills
	moaba	1	1		Riverside	25-Dec-80	325	Box Springs Mts nr UCR
	moaba		2		Riverside	29-Nov-81	450	3.2 km S of Valle Vista on Rt 74, under live oak
	moaba	1			Riverside	9-Dec-81	950	Joshua Tree Natl Pk
	moaba	1			Riverside	18-Nov-83	200	Vail Lake
	moaba	1			Riverside	25-Dec-80	325	Box Springs Mts nr UCR
<i>Scaphiella</i>	hespera	1			Riverside	25-Dec-80	325	Box Springs Mts nr UCR
	hespera	1	1		Riverside	9-Dec-81	950	Joshua Tree Natl Pk
Dictynidae								
<i>Dictyna</i>	cholla		1		Riverside	27-Dec-79	400	Whitewater Cyn
	cholla	1			Riverside	25-Dec-80	325	Box Springs Mts nr UCR
<i>Tivyna</i>	moaba		1		Riverside	5-Nov-80	400	Whitewater Cyn
	moaba		1		San Bernardino	25-May-82	550	Twentynine Palms
<i>Yorima</i>	angelica	1			San Bernardino	26-Feb-77	525	E of Mentone
	angelica	1			Riverside	29-Apr-82	325	Clinton Keith Rd, W of Murrieta near entrance to cyn
	imm			1	Los Angeles	17-Nov-80	1000	Bouquet Reservoir
Scytodidae								
<i>Scytodes</i>	undescr. sp.			3	Riverside	13-Nov-79	400	Whitewater Cyn
	undescr. sp.			4	Riverside	5-Nov-80	400	Whitewater Cyn

Table 1. Continued.

Family/Genus	Species	Male	Fem	Imm	County	Date	Elevation (meters)	Locale
Caponiidae								
<i>Orthonops</i>	imm			1	Imperial	25-Mar-80	100	Indian wash, 30 km SE of Glamis
	imm			3	Los Angeles	17-Nov-80	1000	Bouquet Reservoir
	imm			1	Riverside	25-Mar-82	500	Hemet, Motte Reserve
	zebra	1			Riverside	13-Feb-77	600	Gavilan Hills
Corinnidae								
<i>Trachelas</i>	pacificus		2		Riverside	18-Nov-83	200	Vail Lake
	pacificus		1		San Bernardino	28-Sep-83	425	Afton Cyn
	pacificus	1			Santa Barbara	11-Aug-83	1075	Figueroa Mt Rd, 1.6 km W of Rngr Sta
Gnaphosidae								
<i>Herpyllus</i>	propinquus		1		Riverside	17-Feb-78	1100	Bautista Cyn
	propinquus	1			San Diego	13-Mar-81	725	San Felipe @ S2
<i>Micaria</i>	imm			1	Riverside	25-Dec-80	325	Box Springs Mts nr UCR
	pasadena		1		San Bernardino	1-May-85	1100	Summit Vly under cottonwood
Hahniidae								
<i>Hahnia</i>	sanjuanensis		2		Riverside	24-Aug-83	950	El Carrizo Oaks
	sanjuanensis	1	1		San Diego	25-Apr-80	1075	San Felipe
Liocranidae								
<i>Phrurotinus</i>	mateonus	1	1		Riverside	18-Nov-83	200	Vail Lake
<i>Scotinella</i>	kastoni		1		San Diego	25-Apr-80	1075	San Felipe
Cybaeidae								
<i>Cybaeota</i>	nana		1		Riverside	15-Nov-81	1825	James Reserve Lk Fulmor
	nana		1		Riverside	14-Jan-83	1800	0.8 km E of James Reserve, San Jacinto Mts
Mysmenidae								
<i>Trogloneta</i>	paradoxum			2	Los Angeles	14-Aug-81	1000	Bouquet Cyn nr. SE arm Bouquet Reservoir

Table 1. Continued.

Family/Genus	Species	Male	Fem	Imm	County	Date	Elevation (meters)	Locale
Plectreuridae								
<i>Plectreurys</i>	deserta	1			Riverside	9-Dec-81	950	Joshua Tree Natl Pk
	imm			1	Riverside	22-May-80	275	Corn Springs, SW Desert Ctr
Salticidae								
<i>Neon</i>	pixii	1			Riverside	20-Mar-77	600	Gavilan Hills
<i>Sitticus</i>	dorsatus		1		Riverside	25-Dec-80	325	Box Springs Mts nr UCR
Theridiidae								
<i>Euryopis</i>	spinigera		1		Riverside	9-Dec-81	1350	Joshua Tree Natl Pk, Jumbo Rocks Cmpgrd
	spinigera		1		Riverside	9-Dec-81	950	Joshua Tree Natl Pk
Cyrtoucheniidae								
<i>Aptostichus</i>	imm			1	Riverside	10-Jan-81	325	Riverside
Filistatidae								
<i>Kukulcania</i>	utahana			1	Riverside	10-Jan-81	325	Riverside
Lycosidae								
<i>Pardosa</i>	california	1			San Bernardino	5-Jun-79	950	4.8 km S of Hesperia
Pholcidae								
<i>Psilochorus</i>	acanthus		1		Los Angeles	14-Aug-81	1000	Bouquet Cyn nr. SE arm Bouquet Reservoir
TOTALS		88	206	22				

RESULTS AND DISCUSSION

A total of 316 spiders representing 20 families, 34 genera and 42 species were identified in this study of *Neotoma* midden litter (Table 1). The linyphiid family provided the greatest number of genera (6), species (12) and overall specimens (204), garnering 65.2% of the specimen total. *Tapinocyba dietrichi* Crosby & Bishop (Linyphiidae) was the most frequently collected species, contributing 118 specimens (37.3% of the specimen total). *T. dietrichi* was found in midden debris in five California counties (Los Angeles, Riverside, San Bernardino, San Diego, Santa Barbara), ranging in approximate elevation from 325 to 1825 m but predominantly found at higher elevations. From the 14 middens in which it was found, the average number of *T. dietrichi* per midden was 8.4, with a range of 1–26 specimens. The other *Tapinocyba* species is believed to be undescribed. The linyphiid genus *Spirembolus* contributed four species and the second most commonly collected species, *S. erratus* Millidge (16.5% of specimen total). The amaurobiid genus, *Zanomys*, also contributed four species and the third most prevalent species, *Z. californica* (Banks) (5.1% of specimen total) with one new species to be described as a result of this study.

Although we expected that the linyphiids would comprise the bulk of midden spider inhabitants, we were somewhat surprised to find *Tapinocyba dietrichi* in southern California, let alone its overwhelming contribution to the study's specimen total. To our knowledge, the only other California specimens of this species were taken in Alpine and Alameda Counties in central California (Crosby & Bishop 1933, Boe, unpublished data). This species was not discovered during faunal studies of coastal sage scrub in either San Diego or Riverside Counties (Prentice et al. 1998, 2001) nor has it been found in montane oak (*Quercus* spp.) leaf duff in southern California (Vetter, unpublished data).

Spirembolus erratus was previously known only from samples collected in sycamore litter (Millidge 1980), grass litter in coastal sage scrub and in oak leaf litter (Riverside County) (Prentice & Vetter, unpublished data). In this study, *S. erratus* was collected most often at elevations of 200 to 700 m with two specimens taken near 1100 m. Millidge (1980) states that virtually nothing is known of the natural history of *Spirembolus* species in general, including our other listed *Spirembolus* species, *S. redondo* (Chamberlin & Ivie), *S. hibernus* Millidge, and *S. demonologicus* (Crosby).

Zanomys californica has previously been collected from *Neotoma* middens by J. Linsdale at the Hastings Reserve in central California (specimens at California Academy of Sciences, examined). In our study, *Z. californica* was more prevalent at high elevations (predominantly 1000–1850 m). Leech (1972) records both *Z. californica* and *Z. ochra* Leech (holotype) from dry leaf duff, the latter also taken from a rat midden in Juab County, Utah. *Z. californica* is a common inhabitant of montane oak leaf duff (moist or dry) in southern California (Vetter, unpublished data).

In addition, the concomitant collection of several females of "*Ceratinopsis*" *palomara* Chamberlin along with the male (which is undescribed) in rat nest litter in the San Jacinto Mountains in corroboration with similar recent contemporaneous collections of both sexes in oak leaf duff in the same mountain range (Vetter

& Prentice, unpublished data) lead to the conclusion that this species does not belong in the genus.

Members of many of the spider families identified from our southern Californian pack rat midden study are commonly found within (and possibly restricted to) the leaf litter strata. In several ecosystems, especially those within the desert, *Neotoma* middens represent a drastic vegetative change from the immediate surroundings and may indeed be "oases" of increased survival potential. Occupied middens contain fresh, nocturnally-harvested vegetation and copious amounts of fecal pellets (Vestal 1938, Linsdale & Tevis 1951), both of which may attract and support potential spider prey in the middens. Active and abandoned middens alike provide refugia (for the local inhabitants) that are structurally more stable and offer protection from environmental extremes than many of the other niches within the surrounding environment. Vorhies & Taylor (1945) showed that over a year's time, temperatures inside an Arizona midden were consistently 11 to 17° C lower than soil surface temperatures.

Platnick (1995) states that rat middens may provide a "vestige refuge" for the araneophagous *Orthonops* spp. due to habitat destruction in various regions of southern California. However, in an undisturbed site in the Colorado Desert south of Joshua Tree National Park (400 m elevation), the caponiids *Orthonops icenoglei* Platnick and *Tarsonops* sp. were frequently collected from pitfall traps but not from the remains of a *Neotoma* midden at the site (Vetter, unpublished data). It may be that, in undisturbed areas, caponiids are not restricted to rat middens nor to leaf duff.

Several of the species listed here were previously taken from *Neotoma* middens during various studies. Gertsch (1960) discovered both *Gertschanapis shantzi* (Gertsch) and *Trogloneta paradoxum* Gertsch while Platnick & Forster (1990) recorded only *G. shantzi* during their examination of Linsdale's wood rat material from the Hastings Reserve. Ryckman & Lee (1956) sampled *Neotoma* middens for reduviid bugs (*Triatoma* spp.), primarily in Riverside and San Bernardino Counties and recorded the arachnids found therein. However, for the spiders, they failed to provide frequency data which would have allowed percent species composition comparisons with our study. Species listed in both their study and ours include the following: *Zanomys californica*, *Trachelas pacificus* Chamberlin & Ivie, *Dictyna cholla* Gertsch & Davis, *Herpyllus propinquus* (Keyserling), *Linyphantes laguna* Chamberlin & Ivie, *Pardosa californica* Keyserling, and *Orchestina moaba* Chamberlin & Ivie. Assuming that their determinations were based on mature specimens, the average size of the species sampled was larger than that of the species that we examined which is probably due to sampling differences of whole nests by Ryckman and Lee in comparison to litter under the nests by Cooper.

Vestal (1938) observed general aspects of *Neotoma* and their nests in Berkeley, California and although most of his article focused on *Neotoma* behavior, he did mention some arthropod associates. The only arachnids listed are mites (*Histiostoma* sp.) and a pseudoscorpion (*Apocheiridium fumeroides*). Walters and Roth (1950) sampled 30 nests in Oregon, recording a myriad of arthropod inhabitants, but list only two genera and four families of spiders, *Orchestina* (Oonopidae), *Calymmaria* (Hahniidae), Linyphiidae, and Lycosidae. Linsdale and Tevis (1951) allocated 80 pages of their comprehensive book to animal associates of *Neotoma*

nests at the Hastings Reserve in central California. However, they merely state that "spiders occur everywhere within the house except in the used nest" ("house" meaning the structure and "used" meaning the occupied portion of the structure). Vorhies & Taylor (1940) investigated middens of *N. albigula albigula* in Arizona and found that, within 100 nests, opilionids were the most common arachnid encountered (74% of the nests), followed by miscellaneous spiders (46%), black widow spiders (12%), scorpions (6%) and one tarantula (1%).

In our work here, we have documented the partial diversity of the Araneae in *Neotoma* middens. Members of many of the families that were sampled here are infrequently collected, possibly because of their rarity, secretive habits, and/or very small size. Three of the species on our list are believed to be previously undescribed taxa, one belonging to an undescribed genus in the family Amaurobiidae (D. Ubick, personal communication). To our knowledge, two of the listed linyphiid species, *Ceratinops inflatus* (Emerton) and *Ceratinopsis interventa* Chamberlin, constitute new records for the state of California. Collecting material from underneath wood rat middens should provide a rewarding experience for the interested arachnologist by producing spiders that are rarely seen or that possess bizarre somatic features (such as *Trogloneta* and *Gertschanapis*) and, thus, would be a fruitful challenge.

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